Instruction Manual

Model rsb/rsc dual

BE SURE TO READ THE "OPERATION" SECTION, SECTION II, OF THE MANUAL BEFORE OPERATING THE SUPPLY.

DETAILED UNPACKING INSTRUCTIONS ARE ON PAGE 7.

NJE Corporation
Dayton, N J 08810

NOTE:

Power Supply should not be returned to the factory for in-warranty repair unless the unit remains inoperable after referring to the troubleshooting section of this manual and carrying out the instructions therein.

Any power supply returned to the factory for repair with blown fuse and/or improperly adjusted OVP setting will not be treated as in-warranty repair. Service and handling charges will apply.

For repair service or advice concerning an application problem please contact the nearest NJE Field representative or factory.

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SECTION I

THEORY OF OPERATION

1. GENERAL DESCRIPTION:

Refer to Chart 1 in Appendix B for converting component designations in following discussion to those on schematic.

The NJE RS dual line of modular power supplies are tracking type two output Power Supplies. The circuitry is all silicon solid state and includes the utilization of integrated circuits. Additionally, all supplies are series regulated and are manufactured with high quality industrial grade components. The quality of the power supply is intended to be consistent with that required for the most sophisticated and/or expensive electronic system in use today. These power supplies provide many features which provide the user with the maximum flexibility consistent with competitive cost, simplicity of design and long term reliability. These features include the following:

(OVP) Over Voltage Protection: (Optional) SCR crowbar to limit maximum output voltage. Normally factory set at 33V (±16.5V).

Current Limiting: Current limiting is set to limit maximum current to approximately 125% of rated current.

Remote Programming: 1 volt per volt or 500 ohm per volt (output terminal strip).

Remote Sensing: Sensing terminals separate from the load terminals provide regulation of the voltage at the load rather than regulation of the voltage at the power supply output terminals. This eliminates the loss of load regulation due to the voltage drop in the wires connecting the supply to the load.

AC Input: All units are designed to operate from 57 HZ to 63 HZ. Input voltage range is 105 to 132 volts and optionally available is 210 to 264 volts AC, 50 HZ, consult factory.

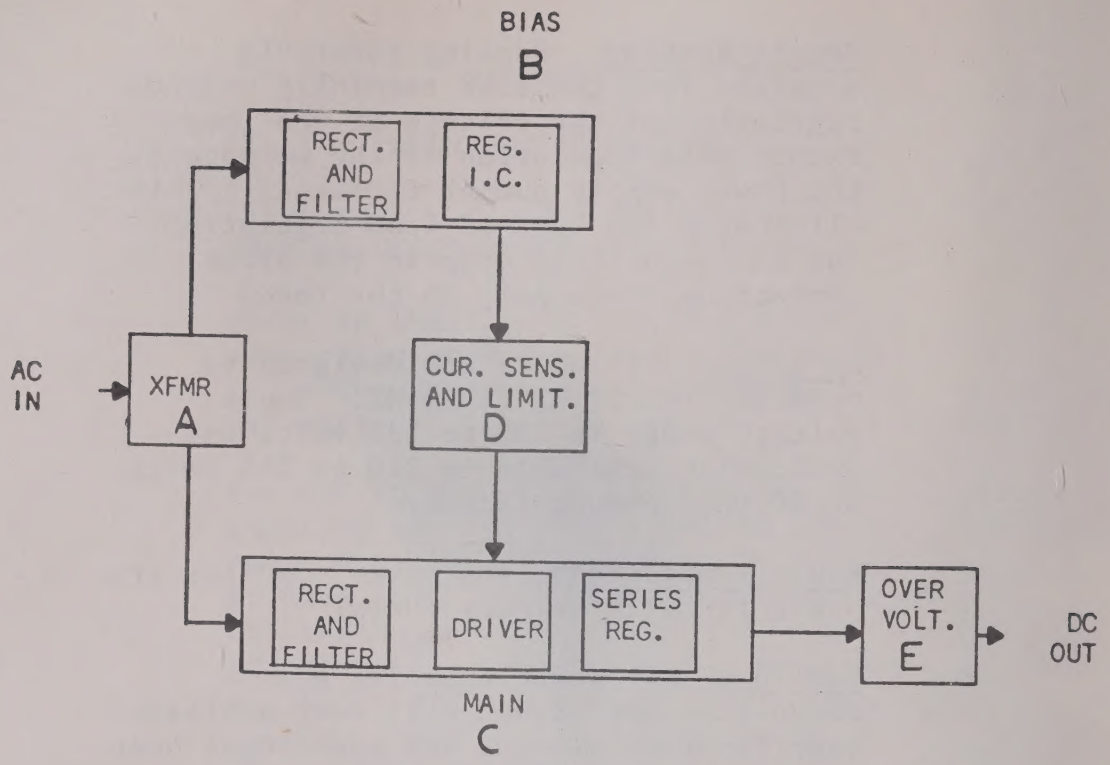
Fault Protection: The power supplies are protected with primary fuses.

Cooling: All power supplies are convection cooled and will meet published specification without any additional heat sink and/or forced air cooling.

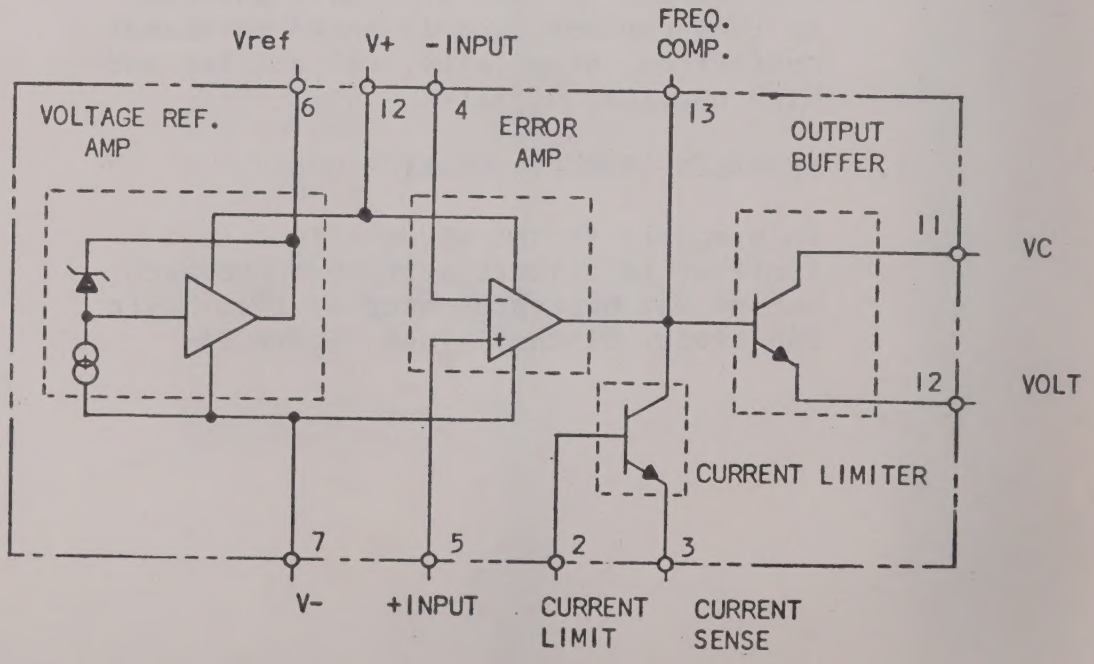
The circuits used are extremely reliable and feature a high degree of simplification. The circuit simplification results in standardization of material and also gives greater reliability due to the reduction of components used in the basic circuits. The overall design philosophy utilized in this product line is based on standardization, simplicity, reliability and high quality.

2. DETAILED CIRCUIT DESCRIPTION:

Each module in the RS dual line is similiar in circuit structure and each output may be represented by five basic functional blocks. (See Figure 1).



BLOCK DIAGRAM
FIGURE 1



REGULATOR IC SCHEMATIC
FIGURE 2

A. Transformer

B. Bias Circuit - 1) Rectifier and Filter
2) Regulator IC

C. Main Circuit - 1) Rectifier and Filter
2) Series Regulator
3) Driver

D. Current Sensing and Limiting Circuit

E. Overvoltage Protection (OVP)

A. Transformer: Each transformer section has a 115V winding, electrostatic shielding, and appropriate power windings. The power windings provide the proper voltage and current for the particular rectifier/filter combination used in the supply.

B. Bias Circuit: This section of the supply consists of a full wave rectifier, a capacitor filter and an integrated circuit regulator. The bias supply utilizes zener diodes. One bias supply serves the positive and negative outputs.

The equivalent circuit (Figure 2) of the IC regulator shows four (4) basic circuits within the package.

1) A reference voltage source
2) A differential error amplifier
3) An output buffer
4) A current limit amplifier

The reference voltage for the positive output is equal to the reference voltage source of the integrated circuit.

Resistors RX1, RX2 and RX3 form a divider network providing the output proportional voltage for the error amplifier of the positive output.

Resistors RX4 and RX5 form the divider network providing the reference voltage of the negative output.

Resistors RX6, RX7 and RX8 form a divider network providing the output proportional voltage for the error amplifier of the negative output.

The error amplifier amplifies the voltage difference between the reference voltage and the output proportional voltage. The error amplifier output acts, through a current amplifier, to adjust the pass transistor(s) drive until the output proportional voltage equals the reference voltage.

C. Main Circuit: This section is a full wave rectifier filtered by a capacitor and regulated by means of a series regulator QX1 through QX2. Depending on the power requirements, the series regulator consists of one or more NPN silicon power transistors connected in parallel with each pass transistor having an emitter resistor.

The error signal of the IC regulator is current amplified by QX3. This amplified signal is utilized to control the output of the series regulator.

D. Current Sensing and Limiting Circuit: This section of the supply becomes effective when the output current reaches the preset limit of the supply.

The limit amplifier, an integral part of the IC voltage regulator, turns on, reducing the output voltage of the error amplifier of the IC. This results in reducing the power supply output voltage. The reduction of output voltage results in a corresponding reduction of output current which insures against excessive power dissipation in the series pass transistor(s). Both the positive and negative outputs have current limiting.

E. Overvoltage Protection: All power supply units utilize a PNP transistor as an SCR driver. The base of the transistor is biased by a resistor divider network consisting of RX9 and RX10 from the output of the power supply. The emitter has a 6.0 volt zener in series to the supply output. When the output voltage increases to a level whereby the zener voltage plus the transistor base emitter voltage reach their trigger point, the transistor turns on and fires the SCR crowbar shorting the power supply terminals. Simultaneously the current limiting circuitry reduces the output current drive to an acceptable level, or if this circuitry is defective the input fuse will blow clearing the power supply from the line.

SECTION II

OPERATION

PLEASE READ THESE INSTRUCTIONS BEFORE OPERATING THE SUPPLY

1. UNPACKING AND INSPECTION:

   Temporarily save all packing material. Read and save all instruction material. Inspect the physical condition of the unit for possible shipping damage. Particularly look for broken controls, fuse holders, and dents, loose hardware and missing parts. Do not operate the unit if obvious or suspected mechanical damage has occurred.

2. ADJUSTMENTS:

   To place the supply in operation, connect a suitable load to the indicated load terminals with the sensing leads either jumpered to the output terminals at the supply (as when the unit is shipped) or connected remotely at the load (observe polarity).

   NOTE

   Sensing leads must never be left disconnected.

   Apply AC power to the indicated terminals. Output adjustment is achieved by a pot adjustment through an appropriately marked hole on the units.

   Over-voltage protection is factory set at 33V ±1.5V (+16.5V) volts. The functioning of the OVP may be checked by advancing the output adjustment until crowbaring occurs.

OVP Adjustment: The setting of over-voltage protection at 33V is to enable the supply to be used at 30 Volts (±15V). If continuous usage at 24 Volts (±12V) is required the protection may be set at 27 Volts (+13.5V) by insertion of a single resistor. After removing the cover, locate the position of R29 on the circuit card. Insertion of a 52.3K ohm, 1%, film resistor for R29 will yield the lower OVP protection.

3. CONNECTIONS:

The units have barrier strip terminals for input and output connections. The positive or negative output terminal may be grounded or operated floating up to a maximum of 500 volts with respect to chassis.

NOTE

Output terminals of power supply should never exhibit a reverse voltage. A protective power diode is connected across the power supply outputs.

Remote Programming: The power supply output voltage may be remotely programmed by a voltage source (1 volt/volt) or a resistor (500 ohms/volts). See Figures 5 and 7 for connections.

Remote Sensing: The unit has provisions whereby the output voltage may be regulated directly at the load terminals. Under heavy loads poor regulation may occur at the load due to the voltage drop in the load leads if remote sensing is not used. Shielded wires should be used for connections between remote load and sensing terminals on power supply. Wires of sufficient size should be used for load leads to minimize voltage drop in these leads. See Figure 4 for remote sensing connections; for local sensing, see Figure 3.

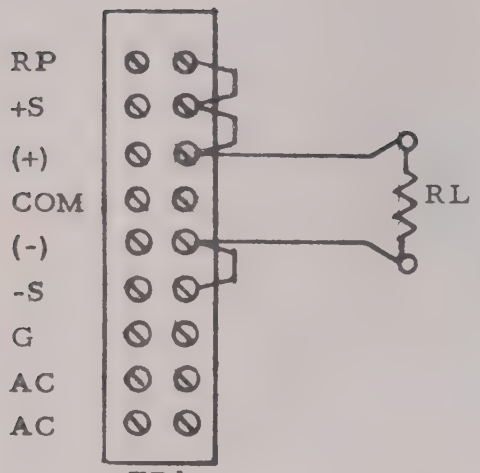


FIG 3
LOCAL SENSING

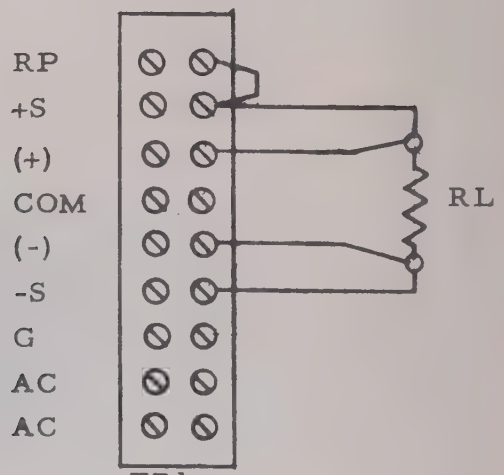


FIG 4
REMOTE SENSING

FIXED OR VARIABLE REMOTE
PROGRAMMING RESISTOR
(USE 100 Ω ADJUSTABLE)

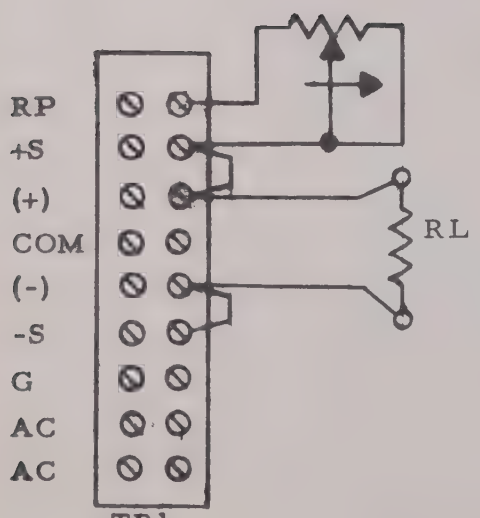


FIG 5
REMOTE PROGRAMMING
LOCAL SENSING

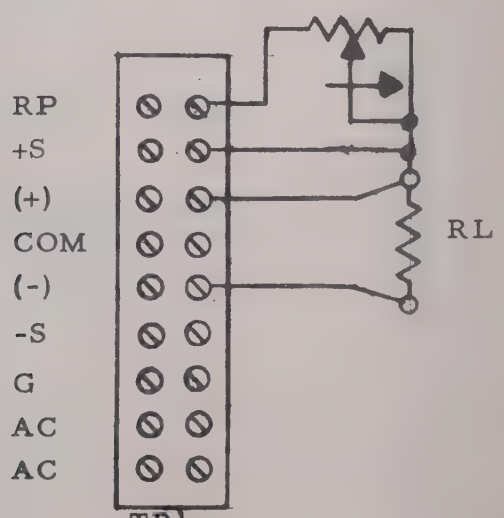


FIG 6
REMOTE PROGRAMMING
REMOTE SENSING

Mounting: When mounting the unit in an installation, care must be taken to provide sufficent air ventilation. The rating chart (Table 1) show output currents at ambient temperatures. The ambient temperature is defined as the temperature one inch from each surface of the supply, excluding the top.

SECTION III

REPAIR, TROUBLESHOOTING, AND MAINTENANCE

An understanding of the operation of power supplies in general, and this series in particular, plus suitable test equipment and replacement parts, is a requirement for proper troubleshooting of a defective supply.

TROUBLESHOOTING CHART

SYMPTOM	POSSIBLE CAUSE	SOLUTION
No Output	AC Input	Check TB pin 1 & 2 for AC Input power.
	Blown Fuse	Replace
	Wiring	Check positive and negative sense leads for proper termination and polarity.
	OVP Tripped	Output voltage set too high or OVP set too low. See OVP setup procedure.
Output Voltage		
Too High	Wiring	Check positive and negative sense leads for proper termination.
	Voltage Adjustment	Pot Adjustment
Too Low	Voltage Adjustment	Pot Adjustment
	OVP Tripped	See OVP set up procedure
	Current Limit	Check for excessive load. See setup procedure.
No Adjustment	Wiring	Sense lead termination incorrect
	Current Limit	Check for excessive load. See setup procedure

APPENDIX A

ELECTRICAL SPECIFICATIONS

AC Input: 3 positions on input/output strip AC, AC return and chassis ground. Input range 105-132V 57 to 63 HZ.

Voltage Regulation: Line, 105 to 132V AC, 0.1%, load, 0 to full rated, 0.1%.

Ripple and Noise: 1.5MV RMS, to 10MHZ 5MV peak to peak.

Remote Programming: Insertion of an external voltage or resistance between appropriate terminals on the input/ output barrier strip provides for external remote adjustment of the output voltage within the range of the unit. Programming constants are 1 V/V and 500 ohms/volt.

Temperature Coefficient of Output Voltage: 0.015%/C.

Temperature Ratings: Operating: - 20°C to 71°C
Storage: - 40°C to +85°C

Stability: .1% total drift for 8 hours following a 30-minute warmup under constant ambient conditions.

Remote Sensing: Since load current usually flows from positive to negative output terminals in dual supply applications these outputs are provided with separate sensing terminals to alleviate the unavoidable voltage drops always present on the load lines.

Overshoot: None present, turn on or turn off.

Overload Protection: Fixed, foldback current limiting set for approximately 125% of rated output. Coninuous short circuits will not damage the power supply.

Over Voltage Protection (Optional): A fixed differential over voltage protector is available which crowbars the output voltage should inadvertent adjustment, internal failure or external spikes cause the output voltage to exceed a preset level. This level is 33V ±1.5V (±16.5V).

Transient Recovery Time: Load variations occurring as a step function between the limits of no load to full load do not cause output voltage transients in excess of ±0.5V and recover to within 33 1/3% of this deviation within 50 US. For 50% load, changes recovery is to within .25% in 50 microseconds.

Efficiency: The RSB is 45% efficient at 115V AC, ±12V @ 1.4 amps, and is 56% efficient at 115V AC, ±15V @ 1.6 amps. The RSC is 47% at 115V AC, ±12V @ 2.5 amps, and is 59% efficient at 115V AC, ±15V @ 3.0 amps.

Tracking Accuracy: The negative output will track the positive output with an accuracy of .1% of the sum of both voltages between the limits of ±11.8V to ±15.2V.

Programming Rate: The output voltage may be programmed by a step change in programming resistance or voltage while the supply is driving full resistive load at the rate of 1.6 volts/millisecond or 0.63 milliseconds/volt.

Options: Change in normal input voltage to 210-264VAC 50 HZ.
Mil type conformal coating over PC boards.

Mechanical: Finish-Modular-Gold Irridite Chassis

Black Identification

Rack Mounted Units:

Blue color chip #25109 (Fed. Std. 595) with white lettering on front panel; gold irridite chassis.

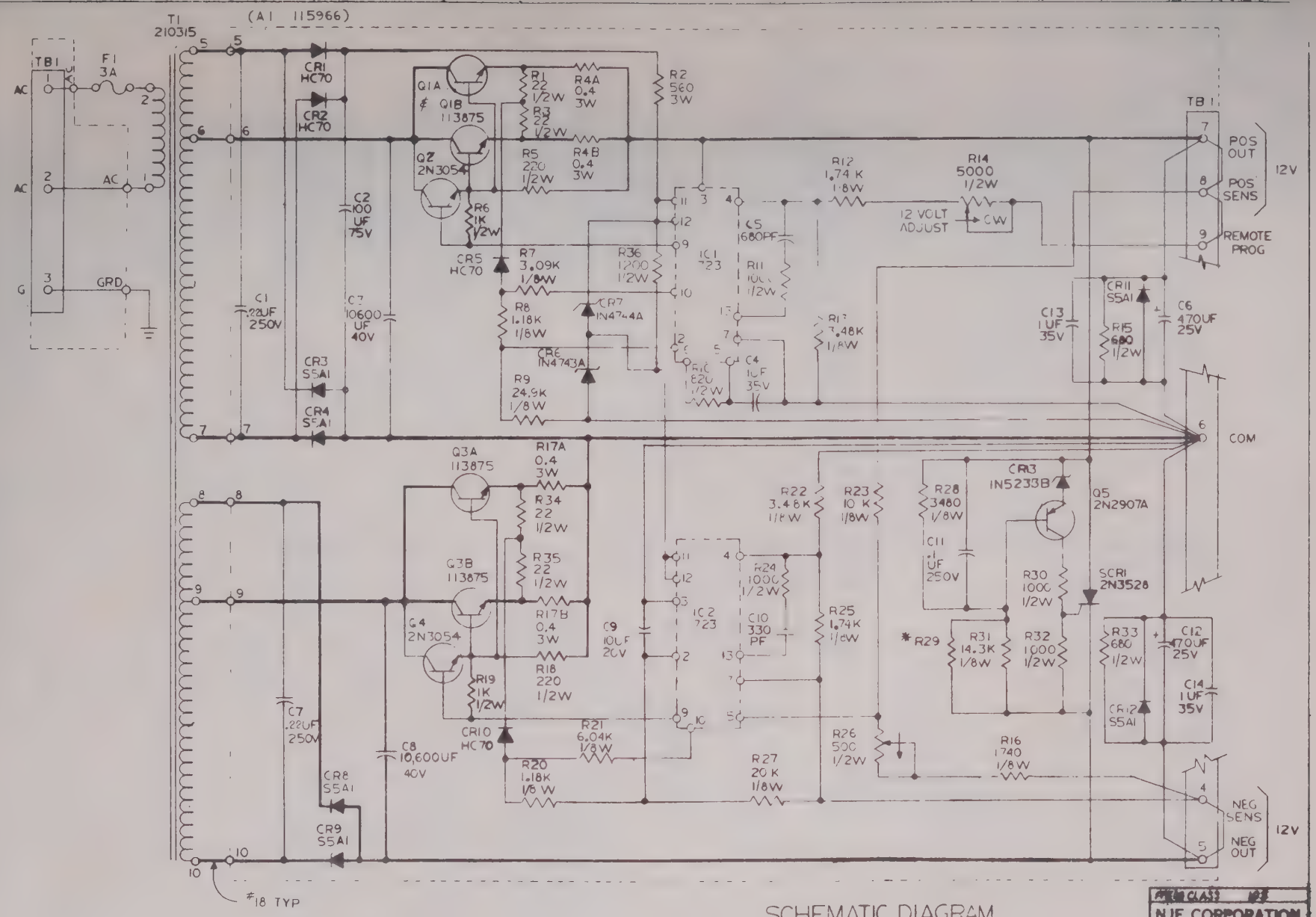
OUTPUT CURRENT RATINGS

Voltage (Range)	CURRENT				Model No.
	40°C	50°C	60°C	71°C	
±12.0	1.4	1.3	1.1	0.6	RSB-212
±15.0	1.6	1.4	1.2	0.7	RSB-212
±12.0	2.5	2.1	1.8	1.2	RSC-212
±15.0	3.0	2.6	2.1	1.5	RSC-212

APPENDIX B

CHART 1

MANUAL REFERENCE DESIG.	ACTUAL COMPONENT REFERENCE DESIGNATIONS (BY MODEL TYPE) AS INDICATED IN POWER SUPPLY, ELECTRICAL PARTS LIST AND SCHEMATIC	
	MODEL RSB	MODEL RSC
RX1	A1R12	A1R12
RX2	A1R13	A1R13
RX3	A1R14	A1R14
RX4	A1R22	A1R22
RX5	A1R25	A1R25
RX6	A1R16	A1R16
RX7	A1R23	A1R23
RX8	A1R26	A1R26
RX9	A1R28	A1R28
RX10	A1R31	A1R31
QX1	A1Q1 A1Q3	A1Q1A A1Q3A
QX2		A1Q1B A1Q3B
QX3	A1Q2 A1Q4	A1Q2 A1Q4



* R29 USED FOR OVP TRIM.

SCHEMATIC DIAGRAM
RSC DUAL

B	ECN B-1358	7/24/72
A	ECN B-1352	6/26/72

NJE CORPORATION
KENILWORTH, N. J.
CODE IDENT. NO. 98300
C 305682

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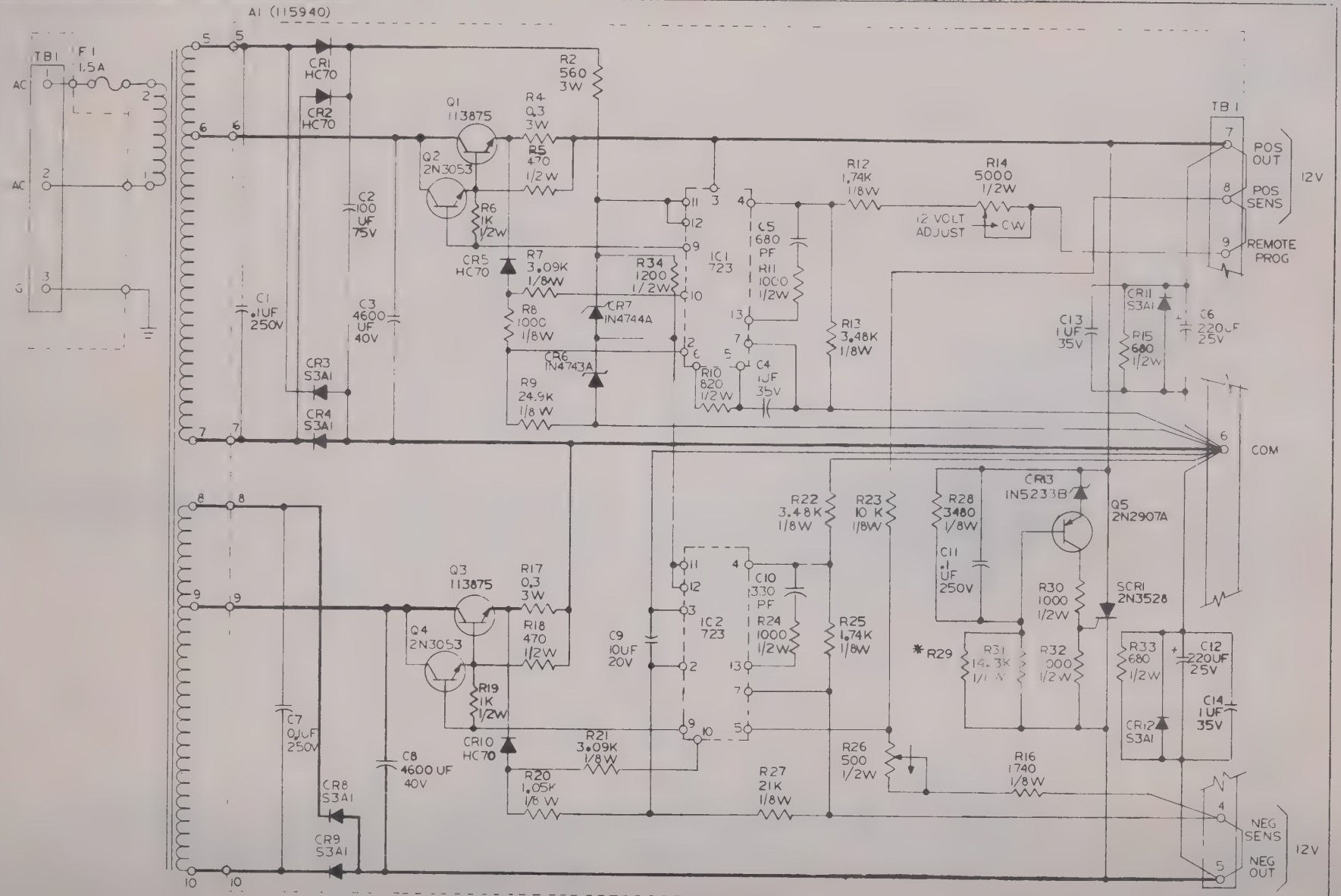


* R29 USED FOR OVP TRIM.

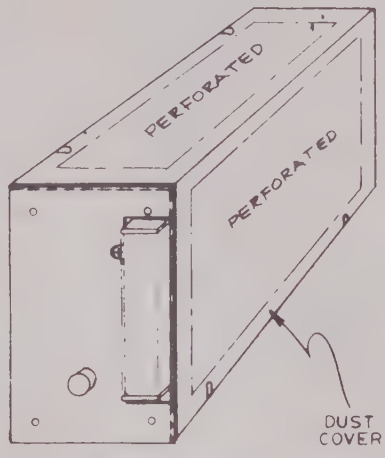
SCHEMATIC DIAGRAM
RSB DUAL

ITEM CLASS 103
NJE CORPORATION
KENILWORTH, N. J.
CODE IDENT NO. 98380
REV. A
SIZE C
305660
SH 1 OF 1

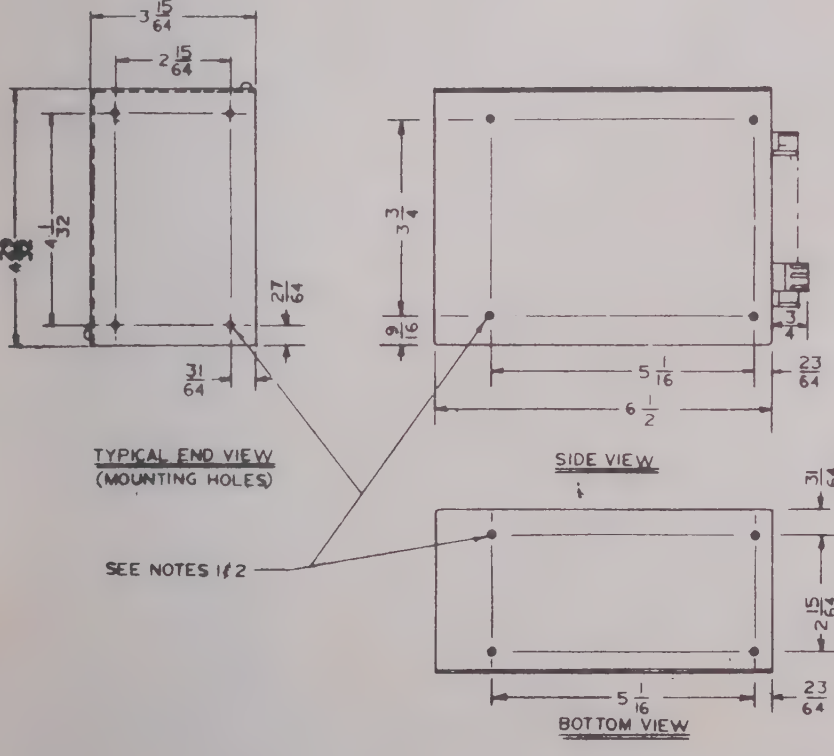
TBI TERMINAL BOARD LEGEND

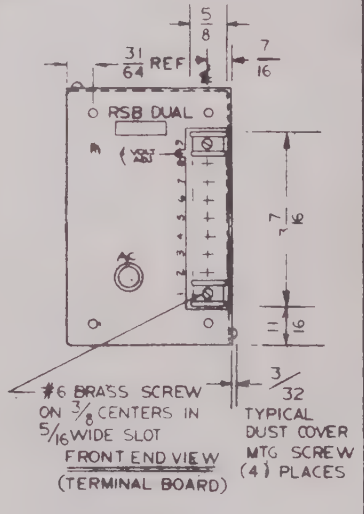
TERM. NO.	SCREENED FUNCTION	RECOM'D WIRE SIZE	REMARKS
1	AC	NO. 20 AWG	AC
2	AC	NO. 20 AWG	AC RETURN
3	G	NO. 20 AWG	GROUND
4	−S	NO. 20 AWG	NORMALLY JUMPED TO NEG OUT
5	—	NO. 20 AWG	NEGATIVE OUT
6	COM	NO. 20 AWG	COMMON
7	+	NO. 20 AWG	POSITIVE OUT
8	+S	NO. 20 AWG	NORMALLY JUMPED TO POS OUT
9	RP	NO. 20 AWG	REMOTE PROGRAMMING

NOTES
1. NO. 8-32 THREADED HOLES FOR MOUNTING. 4 ON EACH END, 4 ON THE BOTTOM & 4 ON THE SIDE.
2. RECOMMENDED SCREW LENGTH IS 3/8" LONG PLUS THICKNESS OF MOUNTING SURFACE.
3. ALL DIMENSIONS ARE ± 1/64



TERMINAL BOARD END





OUTLINE RSB DUAL

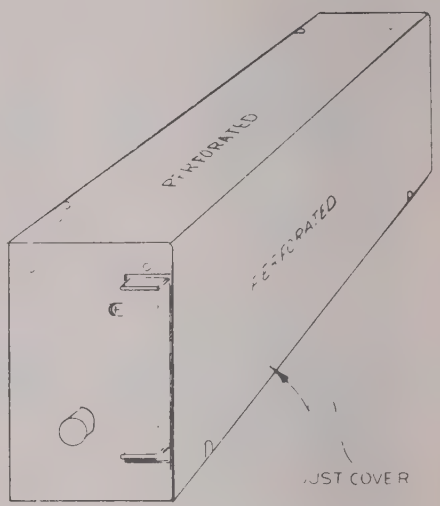
NJE CORPORATION KENILWORTH, N. J.	SIZE	CODE IDENT NO. 98380	DWG NO. 114239
	SCALE	REV	SHEET 2 OF 3

TB1 TERMINAL BOARD LEGEND

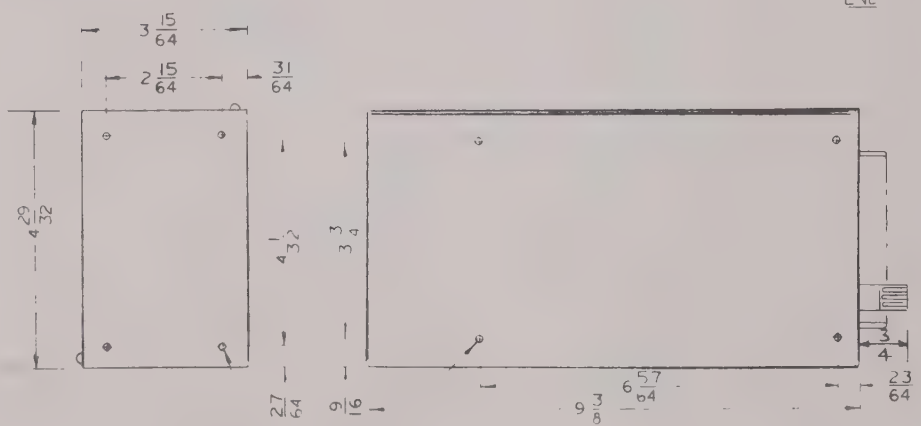
TERM. NO.	SCREENED FUNCTION	RECOM'D WIRE SIZE	REMARKS
1	AC	NO. 20 AWG	AC
2	AC	NO. 20 AWG	AC RETURN
3	G	NO. 20 AWG	GROUND
4	−S	NO. 20 AWG	NORMLLY JUMPED TO NEG OUT
5	−	NO. 20 AWG	NEGATIVE OUT
6	COM	NO. 20 AWG	COMMON
7	+	NO. 20 AWG	POSITIVE OUT
8	+S	NO. 20 AWG	NORMLLY JUMPED TO POS OUT
9	RP	NO. 20 AWG	REMOTE PROGRAMMING

NOTES

1. NO. 8-32 THREADED HOLES FOR MOUNTING. 4 ON EACH END, 4 ON THE BOTTOM & 4 ON THE SIDE.
2. RECOMMENDED SCREW LENGTH IS 3/8" LONG PLUS THICKNESS OF MOUNTING SURFACE.
3 ALL DIMENSIONS ARE ± 1/64



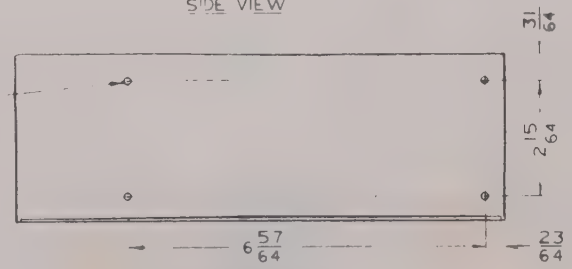
TERMINAL BOARD END



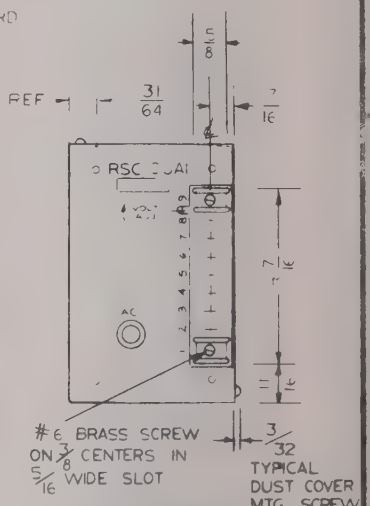
TYPICAL END VIEW (MOUNTING HOLES)

SEE NOTES 1 & 2

SIDE VIEW



BOTTOM VIEW



FRONT END VIEW (TEMINAL BOARD)

OUTLINE
RSC DUAL

NJE CORPORATION KENILWORTH, N. J.	SIZE	CODE IDENT NO. 98380	DWG NO. 114240
	SCALE	REV	SHEET 2 OF 3

305291

SPARE PARTS LIST

NJE CORP. DAYTON, N.J. — MODEL RSB/C DUAL

REF DES	DESCRIPTION		MODEL	
			DUAL RSB	DUAL RSC
F1	Fuse Cartridge	P/N	3695	114732
		VALUE	1.5A, 250 V	3A, 250V
T1	Transformer	P/N	210304	210315
		VALUE	--	--
A1	Ckt. Card Assy.	P/N	115940	115966
		VALUE	--	--
		P/N		
		VALUE		
		P/N		
		VALUE		
A1 C1	Cap. Fxd. Foil	P/N	505480	505481
		VALUE	.1uf, 250V	.22uf, 250V
A1 C2	Cap. Fxd. Elect	P/N	115696	115696
		VALUE	100uf, 75V	100uf, 75V
A1 C3	Cap. Fxd. Elect	P/N	114621 ? 114694	114694
		VALUE	4600uf, 40V	10600uf, 40V
A1 C4	Cap. Fxd. Tant	P/N	113604	113604
		VALUE	1uf, 35V	1uf, 35V
A1 C5	Cap. Fxd. Cerm.	P/N	116015	116015
		VALUE	680PF, 600V	680PF, 600V
A1 C6	Cap. Fxd. Elect	P/N	116031	116016
		VALUE	220uf, 25V	470uf, 25V
A1 C7	Cap. Fxd. Foil	P/N	505480	505481
		VALUE	.1uf, 250V	.22uf, 250V
A1 C8	Cap Fxd Elect	P/N	114621	114694
		VALUE	4600uf, 40V	10600uf, 40V
A1 C9	Cap Fxd Tant	P/N	113776	113776
		VALUE	10uf, 20V	10uf, 20V
A1 C10	Cap Fxd Cerm	P/N	116014	116014
		VALUE	330PF, 600V	330PF, 600V
A1 C11	Cap Fxd Foil	P/N	505480	505480
		VALUE	.1uf, 250V	.1uf, 250V
A1 C12	Cap Fxd Elect	P/N	116031	116016
		VALUE	220uf, 25V	470uf, 25V
A1 C13	Cap Fxd Tant	P/N	113604	113604
		VALUE	1uf, 35V	1uf, 35V

REF DES	DESCRIPTION		MODEL	
			DUAL RSB	DUAL RSC
A1 C14	Cap Fxd Tant	P/N	113604	113604
		VALUE	1uf, 35V	1uf, 35V
		P/N		
		VALUE		
		P/N		
		VALUE		
A1 CR1	Diode Rect	P/N	113126	113126
		VALUE	1.1A, 400V	1.1A, 400V
A1 CR2	Diode Rect	P/N	113126	113126
		VALUE	1.1A, 400V	1.1A, 400V
A1 CR3	Diode Rect	P/N	113988	113464
		VALUE	3A, 100V	5A, 100V
A1 CR4	Diode Rect	P/N	113988	113464
		VALUE	3A, 100V	5A, 100V
A1 CR5	Diode Rect	P/N	113126	113126
		VALUE	1.1A, 400V	1.1A, 400V
A1 CR6	Diode Zener	P/N	113699	113699
		VALUE	19ma, 13V	19ma, 13V
A1 CR7	Diode Zener	P/N	113700	113700
		VALUE	17ma, 15V	17ma, 15V
A1 CR8	Diode Rect	P/N	113988	113464
		VALUE	3A, 100V	5A, 100V
A1 CR9	Diode Rect	P/N	113988	113464
		VALUE	3A, 100V	5A, 100V
A1 CR10	Diode Rect	P/N	113126	113126
		VALUE	1.1A, 400V	1.1A, 400V
A1 CR11	Diode Rect	P/N	113988	113464
		VALUE	3A, 100V	5A, 100V
A1 CR12	Diode Rect	P/N	113988	113464
		VALUE	3A, 100V	5A, 100V
A1 CR13	Diode Zener	P/N	113911	113911
		VALUE	20ma, 6V	20ma, 6V
		P/N		
		VALUE		
		P/N		
		VALUE		

SPARE PARTS LIST

NJE CORP. DAYTON, N.J.

MODEL RSB/C DUAL

REF DES	DESCRIPTION		MODEL	
			DUAL RSB	DUAL RSC
A1 1C-1	Int Ckt	P/N	114232	114232
		VALUE	--	--
A1 1C-2	Int Ckt	P/N	114232	114232
		VALUE	--	--
A1 Q1A	Xistor NPN SI	P/N	113875	113875
		VALUE	115W, 40V	115W, 40V
A1 Q1B	Xistor NPN SI	P/N	--	113875
		VALUE	Not used	115W, 40V
A1 Q2	Xistor NPN SI	P/N	5258	505469
		VALUE	4W, 60V	29W, 55V
A1 Q3A	Xistor NPN SI	P/N	113875	113875
		VALUE	115W, 40V	115W, 40V
A1 Q3B	Xistor NPN SI	P/N	--	113875
		VALUE	Not used	115W, 40V
A1 Q4	Xistor NPN SI	P/N	5258	505469
		VALUE	4W, 60V	29W, 55V
A1 Q5	Xistor PNP SI	P/N	114322	114322
		VALUE	400mw, 40V	400mw, 40V
		P/N		
		VALUE		
		P/N		
		VALUE		
A1 R1	Res Fxd Comp	P/N	--	--
		VALUE	Not used	22Ω, ½W
A1 R2	Res Fxd WW	P/N	110628	110628
		VALUE	560Ω, 3W	560Ω, 3W
A1 R3	Res Fxd Comp	P/N	--	--
		VALUE	Not used	22Ω, ½W
A1 R4A	Res Fxd W. W.	P/N	111973	113412
		VALUE	.3Ω, 3W	.4Ω, 3W
A1 R4B	Res Fxd W. W.	P/N	--	113412
		VALUE	Not used	.4Ω, 3W
A1 R5	Res Fxd Comp	P/N	--	--
		VALUE	470Ω, ½W	220Ω, ½W
A1 R6	Res Fxd Comp	P/N	--	--
		VALUE	1K, ½W	1K, ½W

REF DES	DESCRIPTION		MODEL	
			DUAL RSB	DUAL RSC
A1 R7	Res Fxd Film 1%	P/N	115927	115927
		VALUE	3.09K, 1/8W	3.09K, 1/8W
A1 R8	Res Fxd Film 1%	P/N	115916	116141
		VALUE	1K, 1/8W	1.18K, 1/8W
A1 R9	Res Fxd Film 1%	P/N	112506	112506
		VALUE	24.9K, 1/8W	24.9K, 1/8W
A1 R10	Res Fxd Comp	P/N	--	--
		VALUE	820Ω, ½W	820Ω, ½W
A1 R11	Res Fxd Comp	P/N	--	--
		VALUE	1K, ½W	1K, ½W
A1 R12	Res Fxd Film 1%	P/N	115937	115937
		VALUE	1.74K, 1/8W	1.74K, 1/8W
A1 R13	Res Fxd Film 1%	P/N	115918	115918
		VALUE	3.48K, 1/8W	3.48K, 1/8W
A1 R14	Res Var Cermet	P/N	115948	115948
		VALUE	5K, ½W	5K, ½W
A1 R15	Res Fxd Comp	P/N	--	--
		VALUE	680Ω, ½W	680Ω, ½W
A1 R16	Res Fxd Film 1%	P/N	115937	115937
		VALUE	1.74K, 1/8W	1.74K, 1/8W
A1 R17A	Res Fxd W. W.	P/N	111973	113412
		VALUE	.3Ω, 3W	.4Ω, 3W
A1 R17B	Res Fxd W. W.	P/N	--	113412
		VALUE	Not used	.4Ω, 3W
A1 R18	Res Fxd Comp	P/N	--	--
		VALUE	470Ω, ½W	220Ω, ½W
A1 R19	Res Fxd Comp	P/N	--	--
		VALUE	1K, ½W	1K, ½W
A1 R20	Res Fxd Film 1%	P/N	115968	116141
		VALUE	1.05K, 1/8W	1.18K, 1/8W
A1 R21	Res Fxd Film 1%	P/N	115927	116071
		VALUE	3.09K, 1/8W	6.04K, 1/8W
A1 R22	Res Fxd Film 1%	P/N	115918	115918
		VALUE	3.48K, 1/8W	3.48K, 1/8W
A1 R23	Res Fxd Film 1%	P/N	115780	115780
		VALUE	10K, 1/8W	10K, 1/8W

SPARE PARTS LIST

NJE CORP. DAYTON, N.J. — MODEL RSB/C DUAL

REF DES	DESCRIPTION		MODEL	
			DUAL RSB	DUAL RSC
A1 R24	Res Fxd Comp	P/N	--	--
		VALUE	1K, ½W	1K, ½W
A1 R25	Res Fxd Film 1%	P/N	115937	115937
		VALUE	1.74K, 1/8W	1.74K, 1/8W
A1 R26	Res Var Cermet	P/N	115483	115483
		VALUE	500Ω, ½W	500Ω, ½W
A1 R27	Res Fxd Film 1%	P/N	115920	115779
		VALUE	21K, 1/8W	20K, 1/8W
A1 R28	Res Fxd Film 1%	P/N	115918	115918
		VALUE	3.48K, 1/8W	3.48K, 1/8W
A1 R29		P/N	--	--
		VALUE	Not used	Not used
A1 R30	Res Fxd Comp	P/N	--	--
		VALUE	1K, ½W	1K, ½W
A1 R31	Res Fxd Film 1%	P/N	116032	116032
		VALUE	14.3K, 1/8W	14.3K, 1/8W
A1 R32	Res Fxd Comp	P/N	--	--
		VALUE	1K, ½W	1K, ½W
A1 R33	Res Fxd Comp	P/N	--	--
		VALUE	680Ω, ½W	680Ω, ½W
A1 R34	Res Fxd Comp	P/N	--	--
		VALUE	1.2K, ½W	22Ω, ½W
A1 R35	Res Fxd Comp	P/N	--	--
		VALUE	Not used	82Ω, ½W
A1 R36	Res Fxd Comp	P/N	--	--
		VALUE	Not used	1.2K, ½W
		P/N		
		VALUE		
		P/N		
		VALUE		
A1 SCR-1	Control Rect	P/N	114722	114722
		VALUE	2A, 200V	2A, 200V
		P/N		
		VALUE		
		P/N		
		VALUE		

REF DES	DESCRIPTION		MODEL	
			DUAL RSB	DUAL RSC
		P/N		
		VALUE		
		P/N		
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		P/N		
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